Commonwealth of Kentucky
Division for Air Quality

PERMIT APPLICATION SUMMARY FORM

Completed by: Herbert Campbell

GENERAL INFORMATION:

Name:	Cash Creek Generation, LLC
Address:	Brownsboro Road, Suite 110, Louisville, Kentucky
Date application received:	May 4, 2006
SIC/Source description:	4911, Electric Generation IGCC with HRSG for Electric Generation
Source ID #:	21-101-00134
Source A.I. #:	40285
Activity #:	APE20060001
Permit number:	V-07-017

APPLICATION TYPE/PERMIT ACTIVITY:

[X] Initial issuance
[ ] Permit modification
__Administrative
__Minor
__Significant
[ ] Permit renewal
[ ] General permit
[ ]Conditional major
[X] Title V
[ ] Synthetic minor
[ ] Operating
[X] Construction/operating

COMPLIANCE SUMMARY:

[ ] Source is out of compliance
[ ] Compliance certification signed
[ ] Compliance schedule included

APPLICABLE REQUIREMENTS LIST:

[X] NSR
[X] PSD
[ ] Netted out of PSD/NSR
[X] NSPS
[ ] NESHAPS
[ ] Not major modification per 401 KAR 51:001, 1(116)(b)
[X] SIP
[ ] Other

MISCELLANEOUS:

[X] Acid rain source
[ ] Source subject to 112(r)
[ ] Source applied for federally enforceable emissions cap
[ ] Source provided terms for alternative operating scenarios
[ ] Source subject to a MACT standard
[ ] Source requested case-by-case 112(g) or (j) determination
[ ] Application proposes new control technology
[X] Certified by responsible official
[X] Diagrams or drawings included
[ ] Confidential business information (CBI) submitted in application
[ ] Pollution Prevention Measures
[ ] Area is non-attainment (list pollutants):

EMISSIONS SUMMARY:

Pollutant	Actual (tpy)	Potential (tpy)
Total Particulate		415
Particulate Matter<10µm (PM_{10})		168
SO_2		391
NOx		704
CO		965
VOC		32
Sulfuric Acid Mist H2SO4		67

SOURCE DESCRIPTION:

Cash Creek Generation, LLC, has applied to the Kentucky Division for Air Quality for a Title V permit to construct a nominal 770 megawatt (MW) electric generation station to be located at Kentucky State Highway 1078 in Henderson, Kentucky. The IGCC facility, an air separation plant, a coal gasification facility and a combined cycle power generation facility are integrated into a single efficient electric generation station to produce electricity from synthesis gas (syngas). The syngas will be the primary fuel used to fire two, GE7FB series combustion turbines (CT's) in combination with heat recovery steam generating (HRSG) units and a steam turbine to produce electricity. For the IGCC combustion turbines, SCR and nitrogen diluent to control NO_x emissions has been included. Additional associated equipments are the tail gas thermal oxidizer, gasifier flare, the associated material storage and handling processes (coal, and combustion by-products), the cooling tower, the auxiliary boiler, and the emergency fire water pump.

The proposed project is classified as a Title V major source due to its emissions of regulated air pollutants and hazardous air pollutants. It constitutes a major stationary source as defined in 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality and is subject to evaluation and review under the provisions of the PSD regulation. The proposed project will result in a significant net emissions increases of the following regulated air pollutants: Particulate matter (PM & PM_{10}), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur dioxide (SO_2), and sulfuric acid (H_2SO_4) mist.

A PSD review performed in accordance with EPA guidance involves the following six requirements:

1. Demonstration of the application of Best Available Control Technology (BACT).
2. Demonstration of compliance with each applicable emission limitation under 401 KAR Chapters 50 to 65 and each applicable emissions standard and standard of performance under 40 CFR Parts 60, 61, and 63.
3. Air quality impact analysis.
4. Class I area impact analysis.
5. Projected growth analysis.
6. Analysis of the effects on soils, vegetation, and visibility.

Furthermore, the source will also be subject to Title V, Title IV Phase II Acid Rain and NO_x SIP Call permitting. The Title V permitting procedures are contained in 401 KAR 52:020. The Title IV permitting procedures are in 401 KAR 52:020, Permits, 401 KAR 52:060, Acid Rain Permit, 40 CFR Part 72, 40 CFR Part 76, and 40 CFR 97. NO_x SIP Call permitting procedures are in 401 KAR 51:160 and 40 CFR 96. This review demonstrates that all regulatory requirements will be met and includes a draft permit that would establish the enforceability of all applicable requirements. This review is to ensure that the source shall be considered in compliance with all applicable requirements, as of the date of permit issuance for the applicable requirements that are specifically identified in the permit, and specifically identified requirements that have been determined to not be applicable to the source.

OPERATING CAPS DESCRIPTIONS:

The plant will be operating year round for 8760 hours per year.
The average heat input to each turbine shall not exceed 2917 MMBtu/hour at ISO standard day conditions on a three hour rolling average.
Synthesis gas (mainly consists of carbon monoxide and hydrogen gas), and natural gas shall be the sole fuels fired in the turbines.
Pursuant to 40 CFR 60, Subpart Da, the permittee must operate such that more than 75 percent (by heat input) of the fuel combusted is synthetic-coal gas on a 12-month rolling average.
Pursuant to the BACT analysis required by 401 KAR 51:017, natural gas usage in the syngas combustion turbines shall not exceed 3877 million SCF of natural gas per year during any subsequent rolling 12 month period. This requirement is waived for thirty-six (36) months after initial start-up.
Pursuant to 401 KAR 51:017, the permittee shall install control devices required to meet BACT. The permittee shall install, operate selective catalytic reduction (SCR) to reduce NOx emission levels.
The maximum operating time for Emission Units 03 (Auxiliary Boiler) and emergency fire pump shall not exceed 500 hours each in any consecutive twelve months.

OPERATIONAL FLEXIBILITY:

N/A